

Report No. S-69-36

5230

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BIOLOGICAL EVALUATION OF
RED-HEADED PINE SAWFLY ON
THE ST. IGNACE RANGER DISTRICT
HIAWATHA NATIONAL FOREST

By

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ABSTRACT

A part of 1 red pine plantation on the St. Ignace Ranger District, Hiawatha National Forest, Michigan, is severely infested with the red-headed pine sawfly, Neodiprion lecontei (Fitch). The forest manager is advised to consider insecticidal treatment to prevent damage.

INTRODUCTION

The red-headed pine sawfly, Neodiprion lecontei (Fitch), is an important pest of pine plantations. The St. Ignace District Ranger, Hiawatha National Forest, reported the sawfly defoliation to Forest Pest Control, St. Paul Field Office. The Field Office staff collected the field data and made an evaluation.

TECHNICAL INFORMATION

A. Causal Agent:

Red-headed pine sawfly, Neodiprion lecontei (Fitch)

B. Host Tree:

Red pine, Pinus resinosa Ait.

C. Type of Damage:

Larval feeding on current and old needles. Complete defoliation of red pine branch or tree results in death of the branch or tree (Benjamin, 1955).

D. Ecological Factors:

Although more than 50 insect parasites and predators attack the sawfly, seldom do they effectively control outbreak populations. Outbreak collapses have been attributed to diseases and weather. Rodents feed heavily on the overwintering cocoons, but their affect on populations is not known (Benjamin, 1955).

E. Location and Extent of Outbreak:

This outbreak was missed in 1969, when a plantation was treated on the same District. The outbreak was discovered by District personnel and evaluated by Forest Pest Control.

The description of the infested plantation is as follows:

Plantation No.	- P113
Location	- T43N, R5W, Sec. 3 NE
Total Area	- about 100 acres
Severely infested area	- 3 acres
Stocking	- about 1200 trees/acre
Tree Height	- 4 feet

The heavily infested area is a small unit near a gravel pit and it is separated from the larger plantation unit by a hardwood strip. In the small unit, sawfly colonies were found on 134 trees out of 1243 examined (10.8%). The larger plantation unit had very few infested trees, less than 1%.

F. Discussion

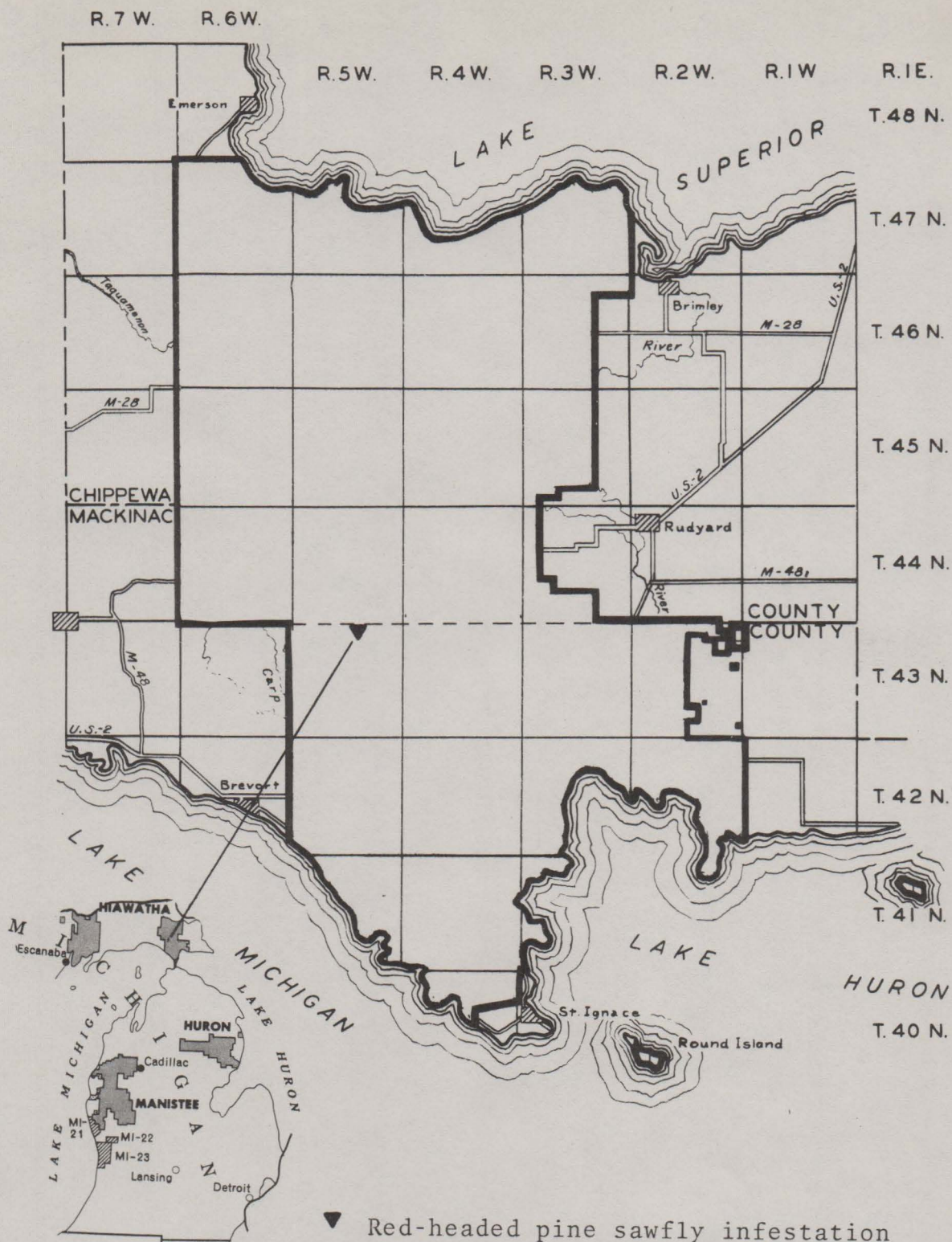
The survey results show that the sawfly was present in outbreak numbers in a 3 acre unit of plantation P113. Since the sawfly overwinters in a cocoon in the ground where it is difficult to sample, population estimates can be made from an egg survey in June at the earliest. However, on the basis of current damage, the great potential for population increase, and the small size of trees, severe damage is probable in 1970. Insecticidal control should be considered in this area.

The larger plantation unit is not in immediate danger of severe defoliation. However, the few sawfly colonies that were found, and the addition of immigrants from the small infested plantation, could cause a rapid build-up where severe damage might occur in 1971. Insecticidal treatment of individual infested trees may be considered for the large plantation unit.

Only DDT is registered for red-headed pine sawfly control. However, DDT is not recommended because of its adverse effects to non-target organisms and its long residual persistence in the environment.

Malathion is effective against sawflies in general. Good control was obtained with 1/2 lb. malathion per acre applied as water emulsion with a mistblower (Fowler, 1969). This control method may be registered by next year. If not, further pilot tests will be necessary in cooperation with the St. Paul Field Office.

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G. Recommendations:

1. The forest manager is advised to consider insecticidal control of the red-headed pine sawfly in the 3 acre unit of plantation P113. Individual tree treatment is advisable in the larger unit.

Adverse effects and Cost-Benefits Analysis (FSM 5230) should be based on the use of 1/2 lb. malathion water emulsion applied with a mistblower. The St. Paul Field Office should be consulted for additional technical information when needed.

2. All field personnel should be on the lookout for red pine defoliation and report their discoveries on Form NA 5200-1.

H. Literature References:

Fowler, R. F. 1969. Red-headed pine sawfly control with Malathion on the Manistee National Forest. USDA-Forest Service, NA S&PF, St. Paul Field Office, Rpt. No. S-69-31. 2 pp.

Benjamin, D. M. 1955. The Biology and Ecology of the red-headed pine sawfly. USDA-Forest Service Tech. Bull. 118. 57 pp.